We Claim:

1. A method for the formation of particular amyloid plaques, the method comprising *in vitro* co-incubation of beta-amyloid protein 1-40 (SEQ ID NO: 1) with a sulfated macromolecule for at least 3-7 days at 30-45°C, wherein the sulfated macromolecule is selected from the group consisting of heparin, any of the non-anticoagulant heparins, dextran sulfate, and pentosan polysulfate, whereby spherical or compact shaped amyloid plaques are formed that demonstrate a maltese-cross pattern when stained with Congo red and viewed under polarized light, and an amyloid star appearance when viewed by transmission electron microscopy.

2. The method of claim 1 wherein the step of co-incubation has a duration of about 7 days.

3. The method of claim 1 wherein the step of co-incubation of the beta-amyloid protein with sulfated macromolecules occurs at about 37°C.

4. The method of claim 1 wherein incubation of the amyloid protein with sulfated macromolecules is in distilled water or Tris-buffered saline (pH 7.0-7.4).

5. The method of claim 1 wherein the sulfated macromolecule is a sulfated glycosaminoglycan selected from the group consisting of heparin, heparan sulfate, dermatan sulfate, chondroitin sulfate, keratan sulfate and fragments of heparin, heparan sulfate, dermatan sulfate, chondroitin sulfate and keratan sulfate.

6. The method of claim 1 wherein the molar ratio of beta-amyloid protein to sulfated macromolecule is within a range of 1:0.5 to 1:100.

7. The method of claim 6 wherein the molar ratio of beta-amyloid protein to sulfated macromolecule is about 1:5.

8. The method of claim 10 wherein the weight ratio of beta-amyloid protein to sulfated macromolecule is within a range of 1:0.4 to 1:100.

9. The method of claim 8 wherein the sulfated macromolecule is heparan sulfate and the weight ratio of beta-amyloid protein to heparan sulfate is about 1:8 or 1:16.

10. A method for the formation of particular amyloid plaques, the method comprising *in vitro* co-incubation of beta-amyloid protein 1-40 (SEQ ID NO: 1) with a sulfated macromolecule for at least 3-7 days at 30-45°C, wherein the sulfated macromolecule is selected from the group consisting of heparan sulfate, polyvinyl sulfonate and perlecan, but excluding EHS perlecan heparan sulfate, whereby spherical or compact shaped amyloid plaques are formed that demonstrate a maltese-cross pattern when stained with Congo red and viewed under polarized light, and an amyloid star appearance when viewed by transmission electron microscopy.

11. The method of claim 1 wherein the sulfated macromolecule is heparin.

12. The method of claim 1 wherein the sulfated macromolecule is dextran sulfate.

13. The method of claim 1 wherein the sulfated macromolecule is pentosan polysulfate.

14. The method of claim 10 wherein the step of co-incubation has a duration of about 7 days.

15. The method of claim 10 wherein the step of co-incubation of the beta-amyloid protein with sulfated macromolecules occurs at about 37°C.

16. The method of claim 8 wherein the sulfated macromolecule is polyvinyl sulfonate and the weight ratio of beta-amyloid protein to polyvinyl sulfonate is about 1:20 or 1:40.

17. The method of claim 8 wherein the sulfated macromolecule is perlecan and the weight ratio of beta-amyloid protein to perlecan is about 1:0.8 or 1:1.

18. A method for the formation of particular amyloid plaques, the method comprising *in vitro* co-incubation of beta-amyloid protein 1-40 (SEQ ID NO: 1) with EHS perlecan heparan sulfate for at least 3-7 days at 30-45°C, wherein the weight ratio of beta-amyloid protein to EHS perlecan heparan sulfate is within a range of 1:0.4 to 1:25, whereby spherical or compact shaped amyloid plaques are formed that demonstrate a maltese-cross pattern when stained with Congo red and viewed under polarized light, and an amyloid star appearance when viewed by transmission electron microscopy.